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LISTING OF CLAIMS

1. (Currently Amended) A network device for transmitting compressed video data onto a channel, the network device comprising:

a bit rate converter designed or configured to transcode compressed video data from multiple bitstreams to produce multiple transcoded bitstreams;

a multiplexer designed or configured to

a) schedule packets from the multiple transcoded bitstreams **in a first pass of scheduling in a scheduling period**;

b) determine if bandwidth is available on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling, the available bandwidth including a difference between a bandwidth on the channel and a sum of a bandwidth needed for all of the packets from the multiple transcoded bitstreams scheduled in the first pass of scheduling**, and if so, allocate additional packets from the multiple transcoded bitstreams **in a second pass of scheduling in the scheduling period** to use the **determined** available bandwidth on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling, ~~and if not, to not allocate additional packets from the multiple transcoded bitstreams in the bandwidth that is available after the multiple transcoded bitstreams have been scheduled by the multiplexer~~**; and

a network interface designed or configured to output **the** **~~data~~** packets from the multiple transcoded bitstreams onto the channel.

2. (Previously Presented) The network device of claim 1 wherein the multiplexer comprises a bandwidth arbitrator that is designed or configured to divide the available bandwidth among the multiple bitstreams.

3. (Original) The network device of claim 2 wherein the bandwidth arbitrator periodically determines and allocates the available bandwidth on a temporal basis.

4. (Original) The network device of claim 2 wherein the bandwidth arbitrator periodically determines a decoder buffer level for each of the bitstreams.

5. (Original) The network device of claim 2 wherein the multiplexer is designed or configured to alter the scheduling of packets according to the bit rate of incoming bitstreams.

6. (Original) The network device of claim 2 further comprising a rate controller, coupled to the bandwidth arbitrator and the bit rate converter, and designed or configured to output a control signal that determines the amount of rate reduction when transcoding the compressed video data.

7. (Previously Presented) The network device of claim 1 wherein a processor in the network device is designed or configured to model downstream decoder buffer levels corresponding to each of the bitstreams.

8. (Previously Presented) The network device of claim 1 wherein the multiplexer is included in a statistical multiplexer.

9. (Currently Amended) A method for transmitting compressed video data onto a channel, the method comprising:

receiving multiple bitstreams, each bitstream including compressed video data contained in packets;

transcoding the compressed video data from the multiple bitstreams to produce multiple transcoded bitstreams;

performing a first pass of scheduling in a scheduling period to schedule ~~**scheduling the**~~ packets from the multiple transcoded bitstreams;

determining if bandwidth is available on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling, the available bandwidth including a difference between a bandwidth on the channel and a sum of a bandwidth needed for all of the packets from the multiple transcoded bitstreams scheduled in the first pass of scheduling;**

performing a second pass of scheduling in the scheduling period to allocate ~~**allocating**~~ additional packets from the multiple transcoded bitstreams to use the **determined** available bandwidth on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling** if there is available bandwidth on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling,** ~~**and if not, not allocating additional packets from the multiple transcoded**~~

~~bitstreams in the bandwidth that is available after the multiple transcoded bitstreams have been scheduled by the multiplexer~~; and

transmitting the ~~data~~ packets from each of the multiple transcoded bitstreams onto the channel.

10. (Original) The method of claim 9 wherein the available bandwidth is determined on a periodic basis.

11. (Original) The method of claim 10 wherein the available bandwidth is periodically determined on one of a temporal, bit or a packet basis.

12. (Original) The method of claim 11 wherein the available bandwidth is periodically determined about every 10 milliseconds to about every 250 milliseconds.

13. (Original) The method of claim 9 wherein the available bandwidth is allocated according to a minimum bandwidth requirement for a downstream decoder.

14. (Original) The method of claim 9 wherein the available bandwidth is allocated inversely proportional to a downstream decoder buffer level.

15. (Original) The method of claim 9 further comprising modeling a downstream decoder buffer level corresponding to one of the multiple bitstreams.

16. (Original) The method of claim 15 wherein the available bandwidth is allocated to a bitstream having a lower modeled downstream decoder buffer level than another bitstream having a higher modeled downstream decoder buffer level.

17. (Original) The method of claim 15 wherein the available bandwidth on the channel is allocated inversely proportional to the modeled downstream decoder buffer level.

18. (Previously Presented) The method of claim 8 wherein the available bandwidth on the channel is allocated proportional to the minimum bandwidth requirement of each downstream decoder buffer level.

19. (Currently Amended) A network device for transmitting compressed video data onto a channel, the network device comprising:

means for receiving multiple bitstreams, each bitstream including compressed video data contained in packets;

means for transcoding compressed video data from the multiple bitstreams to produce multiple transcoded bitstreams;

means for **performing a first pass of scheduling in a scheduling period to schedule** ~~scheduling the~~ packets from the multiple transcoded bitstreams;

means for determining if bandwidth is available on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling, the available bandwidth including a difference between a bandwidth on the channel and a sum of a bandwidth needed for all of the packets from the multiple transcoded bitstreams scheduled in the first pass of scheduling;**

means for **performing a second pass of scheduling in the scheduling period to allocate** ~~allocating~~ additional packets from the multiple transcoded bitstreams to use the **determined** available bandwidth on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling** if there is bandwidth that is available on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling**; and

means for transmitting **the** ~~data~~ packets from each of the multiple transcoded bitstreams onto the channel.

20. (Original) The network device of claim 19 further comprising means, coupled to the means for scheduling and the means for transcoding, for outputting a control signal that determines the amount of rate reduction when transcoding the compressed video data.

21. (Original) The network device of claim 19 further comprising means for modeling a downstream decoder buffer level corresponding to one of the multiple bitstreams.

22. (Currently Amended) A computer readable medium storing computer executable instructions for transmitting compressed video data onto a channel, the instructions comprising:

instructions for receiving multiple bitstreams, each bitstream including compressed video data contained in packets;

instructions for transcoding compressed video data from the multiple bitstreams to produce multiple transcoded bitstreams;

instructions for **performing a first pass of scheduling in a scheduling period to schedule** ~~scheduling the~~ packets from the multiple transcoded bitstreams;

instructions for determining if bandwidth is available on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling, the available bandwidth including a difference between a bandwidth on the channel and a sum of a bandwidth needed for all of the packets from the multiple transcoded bitstreams scheduled in the first pass of scheduling;**

instructions for **performing a second pass of scheduling in the scheduling period to allocate** ~~allocating~~ additional packets from the multiple transcoded bitstreams to use the **determined** available bandwidth on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling** if there is bandwidth that is available on the channel after the multiple transcoded bitstreams have been scheduled by the multiplexer **in the first pass of scheduling**; and

instructions for transmitting **the** ~~data~~ packets from each of the multiple transcoded bitstreams onto the channel.